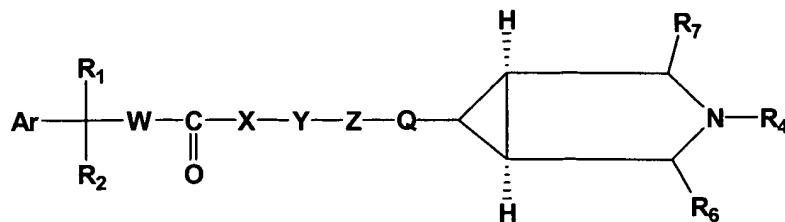


1. (Currently Amended) A compound having the structure of Formula I



Formula I

and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs, metabolites, wherein

Ar represents an aryl or a heteroaryl ring having 1-2 hetero atoms selected from the group consisting of oxygen, sulphur and nitrogen atoms, the aryl or heteroaryl rings may be unsubstituted or substituted by one to three substituents independently selected from lower alkyl (C₁-C₄), lower perhalo alkyl (C₁-C₄), cyano, hydroxy, nitro, lower alkoxy (C₁-C₄), lower perhalo alkoxy (C₁-C₄), unsubstituted amino, N-lower alkyl (C₁-C₄) amino or N-lower alkyl (C₁-C₄) amino carbonyl;

R₁ represents a hydrogen, hydroxy, hydroxymethyl, amino, alkoxy, carbamoyl or halogen (fluorine, chlorine, bromine or iodine);

R₂ represents a C₃-C₇ cycloalkyl ring in which from 1 to 4 hydrogen atoms are substituted with fluorine atoms, amides or sulphonamide derivatives;

W represents (CH₂)_p, where p represents 0 or 1;

X represents oxygen, sulphur, nitrogen or no atom;

Y represents CHR₅CO wherein R₅ represents hydrogen or methyl or (CH₂)_q wherein q represents 0 to 4;

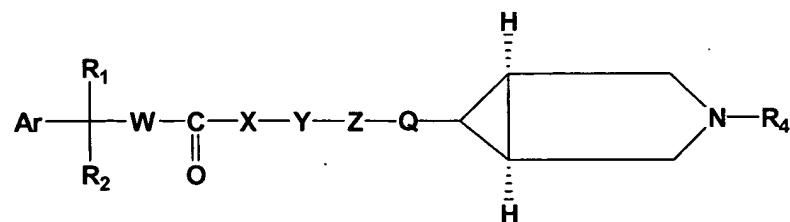
Z represents oxygen, sulphur or NR₁₀, wherein R₁₀ represents hydrogen or C₁₋₆ alkyl;

Q represents (CH₂)_n wherein n represents 1 to 4, or CHR₈ wherein R₈ represents H, OH, C₁₋₆, alkyl, alkenyl alkoxy or CH₂CHR₉ wherein R₉ represents H, OH, lower alkyl (C_{1-C₄}) or lower alkoxy (C_{1-C₄});

R₆ and R₇ are independently selected from H, CH₃, COOH, CONH₂, NH₂ or CH₂NH₂; and

R₄ represents a C_{1-C₁₅} saturated or unsaturated aliphatic hydrocarbon group in which from 1 to 6 hydrogen atoms may be substituted with the group independently selected from halogen, arylalkyl, arylalkenyl, heteroarylalkyl or heteroarylalkenyl having 1 to 2 hetero atoms selected from the group consisting of nitrogen, oxygen and sulphur atoms with an option that any 1 to 3 hydrogen atoms on the ring in said arylalkyl, arylalkenyl, hetero arylalkenyl group may be substituted with lower alkyl (C_{1-C₄}), lower perhalo alkyl (C_{1-C₄}), cyano, hydroxyl, nitro, lower alkoxy carbonyl, halogen, lower alkoxy (C_{1-C₄}), lower perhaloalkoxy (C_{1-C₄}), unsubstituted amino, N-lower alkylamino (C_{1-C₄}) or N-lower alkylamino carbonyl (C_{1-C₄}).

2. (Currently Amended) A The compound of claim 1, wherein the compound having has the structure of Formula II,



Formula II

~~and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs, metabolites, wherein~~

Ar represents an aryl or a heteroaryl ring having 1-2 hetero atoms selected from the group consisting of oxygen, sulphur and nitrogen atoms, the aryl or heteroaryl rings may be unsubstituted or substituted by one to three substituents independently selected from lower alkyl (C₁-C₄), lower perhalo alkyl (C₁-C₄), cyano, hydroxy, nitro, lower alkoxy (C₁-C₄), lower perhalo alkoxy (C₁-C₄), unsubstituted amino, N-lower alkyl (C₁-C₄) amino or N-lower alkyl (C₁-C₄) amino carbonyl;

R₁ represents a hydrogen, hydroxy, hydroxymethyl, amino, alkoxy, carbamoyl or halogen (fluorine, chlorine, bromine or iodine);

R₂ represents a C₃-C₇ cycloalkyl ring in which from 1 to 4 hydrogen atoms are substituted with fluorine atoms, amides or sulphonamide derivatives;

W represents (CH₂)_p, where p represents 0 or 1;

X represents oxygen, sulphur, nitrogen or no atom;

Y represents CHR₅CO wherein R₅ represents hydrogen or methyl or (CH₂)_q wherein q represents 0 to 4;

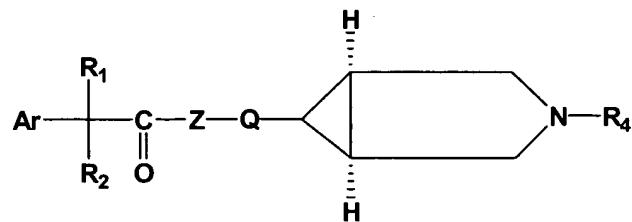
Z represents oxygen, sulphur or NR₁₀, wherein R₁₀ represents hydrogen or C₁₋₆ alkyl;

Q represents (CH₂)_n wherein n represents 1 to 4, or CHR₈ wherein R₈ represents H, OH, C₁₋₆, alkyl, alkenyl alkoxy or CH₂CHR₉ wherein R₉ represents H, OH, lower alkyl (C₁-C₄) or lower alkoxy (C₁-C₄); and

R₄ represents a C₁-C₁₅ saturated or unsaturated aliphatic hydrocarbon group in which from 1 to 6 hydrogen atoms may be substituted with the group independently selected from halogen, arylalkyl, arylalkenyl, heteroarylalkyl or heteroarylalkenyl having 1 to 2 hetero atoms selected from the group consisting of nitrogen, oxygen and sulphur atoms with an option that any 1 to 3 hydrogen atoms on the ring in said arylalkyl, arylalkenyl, hetero arylalkenyl group may be substituted with lower alkyl (C₁-C₄), lower perhalo alkyl

(C₁-C₄), cyano, hydroxyl, nitro, lower alkoxycarbonyl, halogen, lower alkoxy (C₁-C₄), lower perhaloalkoxy (C₁-C₄), unsubstituted amino, N-lower alkylamino (C₁-C₄) or N-lower alkylamino carbonyl (C₁-C₄).

3. (Currently Amended) A The compound of claim 1, wherein the compound has having the structure of Formula III,



Formula III

~~and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs, metabolites, wherein~~

Ar represents an aryl or a heteroaryl ring having 1-2 hetero atoms selected from the group consisting of oxygen, sulphur and nitrogen atoms, the aryl or heteroaryl rings may be unsubstituted or substituted by one to three substituents independently selected from lower alkyl (C₁-C₄), lower perhalo alkyl (C₁-C₄), cyano, hydroxy, nitro, lower alkoxy (C₁-C₄), lower perhalo alkoxy (C₁-C₄), unsubstituted amino, N-lower alkyl (C₁-C₄) amino or N-lower alkyl (C₁-C₄) amino carbonyl;

R₁ represents a hydrogen, hydroxy, hydroxymethyl, amino, alkoxy, carbamoyl or halogen (fluorine, chlorine, bromine or iodine);

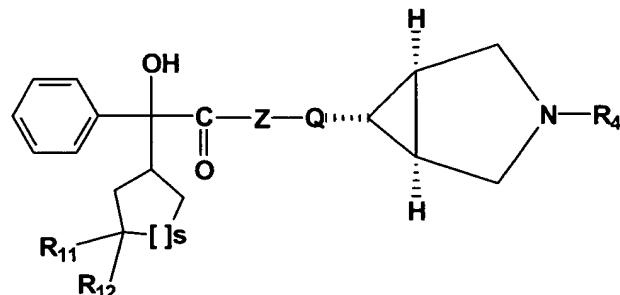
R₂ represents a C₃-C₇ cycloalkyl ring in which from 1 to 4 hydrogen atoms are substituted with fluorine atoms, amides or sulphonamide derivatives;

Z represents oxygen, sulphur or NR₁₀, wherein R₁₀ represents hydrogen or C₁₋₆ alkyl;

Q represents $(CH_2)_n$ wherein n represents 1 to 4, or CHR_8 wherein R_8 represents H, OH, C_{1-6} , alkyl, alkenyl alkoxy or CH_2CHR_9 wherein R_9 represents H, OH, lower alkyl (C_{1-C_4}) or lower alkoxy (C_{1-C_4}); and

R_4 represents a $C_{1-C_{15}}$ saturated or unsaturated aliphatic hydrocarbon group in which from 1 to 6 hydrogen atoms may be substituted with the group independently selected from halogen, arylalkyl, arylalkenyl, heteroarylalkyl or heteroarylalkenyl having 1 to 2 hetero atoms selected from the group consisting of nitrogen, oxygen and sulphur atoms with an option that any 1 to 3 hydrogen atoms on the ring in said arylalkyl, arylalkenyl, hetero arylalkenyl group may be substituted with lower alkyl (C_{1-C_4}), lower perhalo alkyl (C_{1-C_4}), cyano, hydroxyl, nitro, lower alkoxy carbonyl, halogen, lower alkoxy (C_{1-C_4}), lower perhalo alkoxy (C_{1-C_4}), unsubstituted amino, N-lower alkylamino (C_{1-C_4}) or N-lower alkylamino carbonyl (C_{1-C_4}).

4. (Currently Amended) A The compound of claim 1, wherein the compound has having the structure of Formula IV,



Formula IV

~~and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, N-oxides, prodrugs or metabolites;~~ wherein R_{11} is hydrogen or fluoro, R_{12} is fluoro, amide or sulphonamide derivatives and s represents 1 to 2;

R_4 represents a $C_{1-C_{15}}$ saturated or unsaturated aliphatic hydrocarbon group in which from 1 to 6 hydrogen atoms may be substituted with the group independently selected

from halogen, arylalkyl, arylalkenyl, heteroarylalkyl or heteroarylalkenyl having 1 to 2 hetero atoms selected from the group consisting of nitrogen, oxygen and sulphur atoms with an option that any 1 to 3 hydrogen atoms on the ring in said arylalkyl, arylalkenyl, hetero arylalkenyl group may be substituted with lower alkyl (C₁-C₄), lower perhalo alkyl (C₁-C₄), cyano, hydroxyl, nitro, lower alkoxy carbonyl, halogen, lower alkoxy (C₁-C₄), lower perhalo alkoxy (C₁-C₄), unsubstituted amino, N-lower alkylamino (C₁-C₄) or N-lower alkylamino carbonyl (C₁-C₄);

Z represents oxygen, sulphur or NR₁₀, wherein R₁₀ represents hydrogen or C₁₋₆ alkyl; and

Q represents (CH₂)_n wherein n represents 1 to 4, or CHR₈ wherein R₈ represents H, OH, C₁₋₆, alkyl, alkenyl alkoxy or CH₂CHR₉ wherein R₉ represents H, OH, lower alkyl (C₁-C₄) or lower alkoxy (C₁-C₄).

5. (Currently Amended) A compound selected from the group consisting of:

(2R)-(1 α ,5 α ,6 α)-N-[3-benzyl-3-azabicyclo[3.1.0]hexyl-6-(aminomethyl)-yl]-2-[(1R or 1S)-3,3-difluorocyclopentyl]-2-hydroxy-2-phenylacetamide (Compound No. 1A)

(2R)-(1 α ,5 α ,6 α)-N-[3-benzyl-3-azabicyclo[3.1.0]hexyl-6-(aminomethyl)-yl]-2-[(1R or 1S)-3,3-difluorocyclopentyl]-2-hydroxy-2-phenylacetamide (Compound No. 1B)

(2R)-(1 α ,5 α ,6 α)-N-[3-benzyl-3-azabicyclo[3.1.0]hexyl-6-(aminomethyl)-yl]-2-[(1R or 1S, 3R or 3S)-3-fluorocyclopentyl]-2-hydroxy-2-phenylacetamide (Compound No. 2)

(2R or 2S)-(1 α ,5 α ,6 α)-N-[3-benzyl-3-azabicyclo[3.1.0]hexyl-6-(aminomethyl)-yl]-2-[(1R or 1S)-3,3-difluorocyclopentyl]-2-hydroxy-2-phenylacetamide (Compound No. 3)

(2R or 2S)-(1 α ,5 α ,6 α)-N-[3-benzyl-3-azabicyclo[3.1.0]hexyl-6-(aminomethyl)-yl]-2-[(1R or 1S, 3R or 3S)-3-fluorocyclopentyl]-2-hydroxy-2-phenylacetamide (Compound No. 4)

(2R)-(1 α ,5 α ,6 α)-N-[3-benzyl-3-azabicyclo[3.1.0]hexyl-6-(aminomethyl)-yl]-2-[(1R or 1S, 3R or 3S)-3-phenylacetyl amino cyclopentyl]-2-hydroxy-2-phenylacetamide (Compound No. 5)

(2R)-(1 α ,5 α ,6 α)-N-[3-benzyl-3-azabicyclo[3.1.0]hexyl-6-(aminomethyl)-yl]-2-[(1R or 1S, 3R or 3S)-3-(4-nitrophenyl) sulphonylaminocyclopentyl]-2-hydroxy-2-phenylacetamide (Compound No. 6)

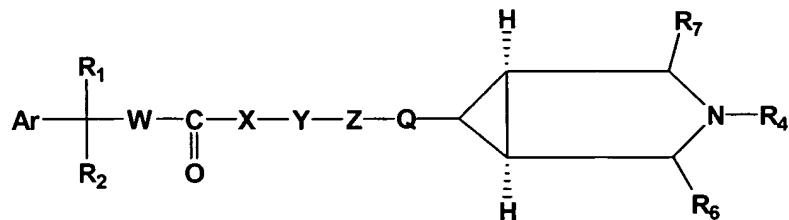
(2R)-(1 α ,5 α ,6 α)-N-[3-benzyl-3-azabicyclo[3.1.0]hexyl-6-(aminomethyl)-yl]-2-[(1R or 1S, 3R or 3S)-3-phenylsulphonylaminocyclopentyl]-2-hydroxy-2-phenylacetamide (Compound No. 7)

(2R)-(1 α ,5 α ,6 α)-N-[3-benzyl-3-azabicyclo[3.1.0]hexyl-6-(aminomethyl)-yl]-2-[(1R or 1S, 3R or 3S)-3-benzyloxyacetylaminocyclopentyl]-2-hydroxy-2-phenylacetamide (Compound No. 8)

(2R)-(1 α ,5 α ,6 α)-N-[3-benzyl-3-azabicyclo[3.1.0]hexyl-6-(aminomethyl)-yl]-2-[(1R or 1S, 3R or 3S)-3-(4-methoxyphenyl) sulphonylaminocyclopentyl]-2-hydroxy-2-phenylacetamide (Compound No. 9); and

(2R)-(1 α ,5 α ,6 α)-N-[3-benzyl-3-azabicyclo[3.1.0]hexyl-6-(aminomethyl)-yl]-2-[(1R or 1S, 3R or 3S)-3-(4-bromophenyl)sulphonylaminocyclopentyl]-2-hydroxy-2-phenylacetamide (Compound No. 10).

6. (Currently Amended) A pharmaceutical composition comprising a therapeutically effective amount of a compound as defined in claims 1, 2, 3, 4 or 5 of claim 1 together with pharmaceutically acceptable carriers, excipients or diluents.
7. (Currently Amended) A method for treatment or prophylaxis of an animal or human suffering from a disease or disorder of the respiratory, urinary and gastrointestinal systems, wherein the disease or disorder is mediated through muscarinic receptors, comprising administering to said animal or human, a therapeutically effective amount of a compound having the structure of Formula I



Formula I

and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs, or metabolites, wherein

Ar represents an aryl or a heteroaryl ring having 1-2 hetero atoms selected from the group consisting of oxygen, sulphur and nitrogen atoms, the aryl or heteroaryl rings may be unsubstituted or substituted by one to three substituents independently selected from lower alkyl (C₁-C₄), lower perhalo alkyl (C₁-C₄), cyano, hydroxy, nitro, lower alkoxy (C₁-C₄), lower perhalo alkoxy (C₁-C₄), unsubstituted amino, N-lower alkyl (C₁-C₄) amino or N-lower alkyl (C₁-C₄) amino carbonyl;

R₁ represents a hydrogen, hydroxyhydroxymethyl, amino, alkoxy, carbamoyl or halogen (fluorine, chlorine, bromine and iodine);

R₂ represents a C₃-C₇ cycloalkyl ring in which from 1 to 4 hydrogen atoms are substituted with fluorine atoms, amides or sulphonamide dérivatives;

W represents (CH₂)_p, where p represents 0 to 1;

X represents an oxygen, sulphur, nitrogen or no atom;

Y represents CHR₅CO wherein R₅ represents hydrogen or methyl or (CH₂)_q wherein q represents 0 to 4;

Z represents oxygen, sulphur, NR₁₀, wherein R₁₀ represents hydrogen or C₁₋₆ alkyl;

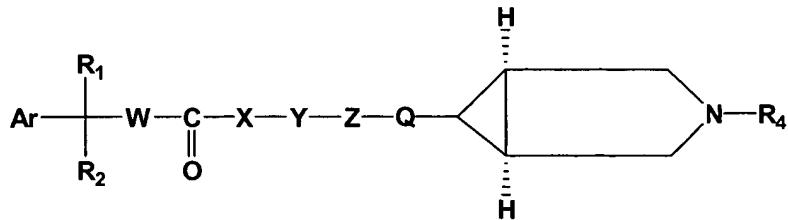
Q represents (CH₂)_n wherein n represents 1 to 4, or CHR₈ wherein R₈ represents H, OH, C₁₋₆, alkyl, alkenyl alkoxy or CH₂CHR₉ wherein R₉ represents H, OH, lower alkyl (C₁-C₄) or lower alkoxy (C₁-C₄);

R₆ and R₇ are independently selected from H, CH₃, COOH, CONH₂, NH₂ or CH₂NH₂; and

R₄ represents a C₁-C₁₅ saturated or unsaturated aliphatic hydrocarbon group in which from 1 to 6 hydrogen atoms may be substituted with the group independently selected

from halogen, arylalkyl, arylalkenyl, heteroarylalkyl or heteroarylalkenyl having 1 to 2 hetero atoms selected from the group consisting of nitrogen, oxygen and sulphur atoms with an option that any 1 to 3 hydrogen atoms on the ring in said arylalkyl, arylalkenyl, hetero arylalkenyl group may be substituted with lower alkyl (C₁-C₄), lower perhalo alkyl (C₁-C₄), cyano, hydroxyl, nitro, lower alkoxy carbonyl, halogen, lower alkoxy (C₁-C₄), lower perhalo alkoxy (C₁-C₄), unsubstituted amino, N-lower alkylamino (C₁-C₄) or N-lower alkylamino carbonyl (C₁-C₄).

8. (Currently Amended) A The method of claim 7, wherein the for treatment or prophylaxis of an animal or human suffering from a disease or disorder of the respiratory, urinary and gastrointestinal systems, wherein the disease or disorder is mediated through the muscarinic receptors, comprising administering to said animal or human, a therapeutically effective amount of a compound having has the structure of Formula II,



Formula II

~~and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs, metabolites, wherein~~

Ar represents an aryl or a heteroaryl ring having 1-2 hetero atoms selected from the group consisting of oxygen, sulphur and nitrogen atoms, the aryl or heteroaryl rings may be unsubstituted or substituted by one to three substituents independently selected from lower alkyl (C₁-C₄), lower perhalo alkyl (C₁-C₄), cyano, hydroxy, nitro, lower alkoxy (C₁-C₄), lower perhalo alkoxy (C₁-C₄), unsubstituted amino, N-lower alkyl (C₁-C₄) amino or N-lower alkyl (C₁-C₄) amino carbonyl;

R₁ represents a hydrogen, hydroxy, hydroxymethyl, amino, alkoxy, carbamoyl or halogen (fluorine, chlorine, bromine or iodine);

R₂ represents a C₃-C₇ cycloalkyl ring in which from 1 to 4 hydrogen atoms are substituted with fluorine atoms, amides or sulphonamide derivatives;

W represents (CH₂)_p, where p represents 0 or 1;

X represents oxygen, sulphur, nitrogen or no atom;

Y represents CHR₅CO wherein R₅ represents hydrogen or methyl or (CH₂)_q wherein q represents 0 to 4;

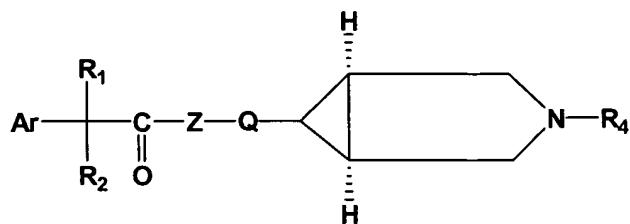
Z represents oxygen, sulphur or NR₁₀, wherein R₁₀ represents hydrogen or C₁₋₆ alkyl;

Q represents (CH₂)_n wherein n represents 1 to 4, or CHR₈ wherein R₈ represents H, OH, C₁₋₆, alkyl, alkenyl alkoxy or CH₂CHR₉ wherein R₉ represents H, OH, lower alkyl (C_{1-C₄}) or lower alkoxy (C_{1-C₄}); and

R₄ represents a C_{1-C₁₅} saturated or unsaturated aliphatic hydrocarbon group in which from 1 to 6 hydrogen atoms may be substituted with the group independently selected from halogen, arylalkyl, arylalkenyl, heteroarylalkyl or heteroarylalkenyl having 1 to 2 hetero atoms selected from the group consisting of nitrogen, oxygen and sulphur atoms with an option that any 1 to 3 hydrogen atoms on the ring in said arylalkyl, arylalkenyl, hetero arylalkenyl group may be substituted with lower alkyl (C_{1-C₄}), lower perhalo alkyl (C_{1-C₄}), cyano, hydroxyl, nitro, lower alkoxy carbonyl, halogen, lower alkoxy (C_{1-C₄}), lower perhaloalkoxy (C_{1-C₄}), unsubstituted amino, N-lower alkylamino (C_{1-C₄}) or N-lower alkylamino carbonyl (C_{1-C₄}).

9. (Currently Amended) A The method of claim 7, for treatment or prophylaxis of an animal or human suffering from a disease or disorder of the respiratory, urinary, and gastrointestinal systems, wherein the disease or disorder is mediated through the

~~muscarinic receptors, comprising administering to said animal or human, a therapeutically effective amount of a wherein the compound having has the structure of~~
~~Formula III,~~



Formula III

~~and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs, metabolites wherein~~

Ar represents an aryl or a heteroaryl ring having 1-2 hetero atoms selected from the group consisting of oxygen, sulphur and nitrogen atoms, the aryl or heteroaryl rings may be unsubstituted or substituted by one to three substituents independently selected from lower alkyl (C₁-C₄), lower perhalo alkyl (C₁-C₄), cyano, hydroxy, nitro, lower alkoxy (C₁-C₄), lower perhalo alkoxy (C₁-C₄), unsubstituted amino, N-lower alkyl (C₁-C₄) amino or N-lower alkyl (C₁-C₄) amino carbonyl;

R₁ represents a hydrogen, hydroxy, hydroxymethyl, amino, alkoxy, carbamoyl or halogen (fluorine, chlorine, bromine or iodine);

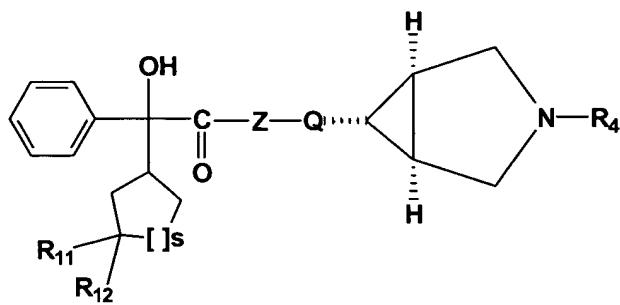
R₂ represents a C₃-C₇ cycloalkyl ring in which from 1 to 4 hydrogen atoms are substituted with fluorine atoms, amides or sulphonamide derivatives;

Z represents oxygen, sulphur or NR₁₀, wherein R₁₀ represents hydrogen or C₁₋₆ alkyl;

Q represents (CH₂)_n wherein n represents 1 to 4, or CH₂CHR₈ wherein R₈ represents H, OH, C₁₋₆ alkyl, alkenyl alkoxy or CH₂CHR₉ wherein R₉ represents H, OH, lower alkyl (C₁-C₄) or lower alkoxy (C₁-C₄); and

R_4 represents a C_1-C_{15} saturated or unsaturated aliphatic hydrocarbon group in which from 1 to 6 hydrogen atoms may be substituted with the group independently selected from halogen, arylalkyl, arylalkenyl, heteroarylalkyl or heteroarylalkenyl having 1 to 2 hetero atoms selected from the group consisting of nitrogen, oxygen and sulphur atoms with an option that any 1 to 3 hydrogen atoms on the ring in said arylalkyl, arylalkenyl, hetero arylalkenyl group may be substituted with lower alkyl (C_1-C_4), lower perhalo alkyl (C_1-C_4), cyano, hydroxyl, nitro, lower alkoxy carbonyl, halogen, lower alkoxy (C_1-C_4), lower perhaloalkoxy (C_1-C_4), unsubstituted amino, N-lower alkylamino (C_1-C_4) or N-lower alkylamino carbonyl (C_1-C_4).

10. (Currently Amended) A The method of claim 7, wherein for treatment or prophylaxis of an animal or human suffering from a disease or disorder of the respiratory, urinary or gastrointestinal systems, wherein the disease or disorder is mediated through the muscarinic receptors, comprising administering to said animal or human, a therapeutically effective amount of a the compound having has the structure of Formula IV,



Formula IV

and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, N-oxides, prodrugs or metabolites, wherein

R_{11} is hydrogen or fluoro, R_{12} is fluoro, amide or sulphonamide derivatives and s represents 1 to 2;

R_4 represents a C_1-C_{15} saturated or unsaturated aliphatic hydrocarbon group in which from 1 to 6 hydrogen atoms may be substituted with the group independently selected

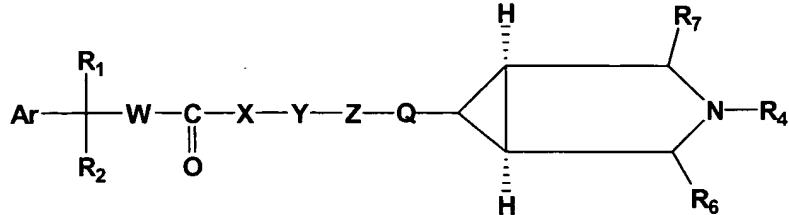
from halogen, arylalkyl, arylalkenyl, heteroarylalkyl or heteroarylalkenyl having 1 to 2 hetero atoms selected from the group consisting of nitrogen, oxygen and sulphur atoms with an option that any 1 to 3 hydrogen atoms on the ring in said arylalkyl, arylalkenyl, hetero arylalkenyl group may be substituted with lower alkyl (C₁-C₄), lower perhalo alkyl (C₁-C₄), cyano, hydroxyl, nitro, lower alkoxy carbonyl, halogen, lower alkoxy (C₁-C₄), lower perhaloalkoxy (C₁-C₄), unsubstituted amino, N-lower alkylamino (C₁-C₄) or N-lower alkylamino carbonyl (C₁-C₄);

Z represents oxygen, sulphur or NR₁₀, wherein R₁₀ represents hydrogen or C₁₋₆ alkyl; and

Q represents (CH₂)_n wherein n represents 1 to 4, or CHR₈ wherein R₈ represents H, OH, C₁₋₆, alkyl, alkenyl alkoxy or CH₂CHR₉ wherein R₉ represents H, OH, lower alkyl (C₁-C₄) or lower alkoxy (C₁-C₄).

11. (Original) The method according to claim 7 wherein the disease or disorder is urinary incontinence, lower urinary tract symptoms (LUTS), bronchial asthma, chronic obstructive pulmonary disorders (COPD), pulmonary fibrosis, irritable bowel syndrome, obesity, diabetes and gastrointestinal hyperkinesia.
12. Cancelled.
13. Cancelled.
14. Cancelled.
15. (Currently Amended) The method for treatment or prophylaxis of an animal or human suffering from a disease or disorder of the respiratory, urinary and gastrointestinal systems, wherein the disease or disorder is mediated through the muscarinic receptors, comprising administering to said animal or human a therapeutically effective amount of the a pharmaceutical composition according to of claim 6.

16. (Currently Amended) The method according to claim 15 wherein the disease or disorder is urinary incontinence, lower urinary tract ~~symptoms symptoms~~ (LUTS), bronchial asthma, chronic obstructive pulmonary disorders (COPD), pulmonary fibrosis, irritable bowel syndrome, obesity, diabetes and gastrointestinal hyperkinesia.
17. (Currently Amended) A process of preparing a compound of Formula I



Formula I

and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs, metabolites, wherein

Ar represents an aryl or a heteroaryl ring having 1-2 hetero atoms selected from the group consisting of oxygen, sulphur and nitrogen atoms, the aryl or heteroaryl rings may be unsubstituted or substituted by one to three substituents independently selected from lower alkyl (C₁-C₄), lower perhalo alkyl (C₁-C₄), cyano, hydroxy, nitro, lower alkoxy (C₁-C₄), lower perhalo alkoxy (C₁-C₄), unsubstituted amino, N-lower alkyl (C₁-C₄) amino or N-lower alkyl (C₁-C₄) amino carbonyl;

R₁ represents a hydrogen, hydroxy, hydroxymethyl, amino, alkoxy, carbamoyl or halogen (fluorine, chlorine, bromine and iodine);

R₂ represents a C₃-C₇ cycloalkyl ring in which from 1 to 4 hydrogen atoms are substituted with fluorine atoms, amides or sulphonamide derivatives;

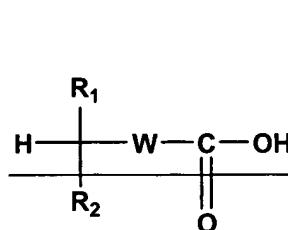
W represents (CH₂)_p, where p represents 0 to 1;

- X represents an oxygen, sulphur, nitrogen or no atom;
- Y represents CHR_5CO wherein R_5 represents hydrogen or methyl or $(\text{CH}_2)_q$ wherein q represents 0 to 4;
- Z represents oxygen, sulphur, NR_{10} , wherein R_{10} represents hydrogen or C_{1-6} alkyl;
- Q represents $(\text{CH}_2)_n$ wherein n represents 1 to 4, or CHR_8 wherein R_8 represents H, OH, C_{1-6} alkyl, alkenyl alkoxy or CH_2CHR_9 wherein R_9 represents H, OH, lower alkyl (C_{1-4}) or lower alkoxy (C_{1-4});

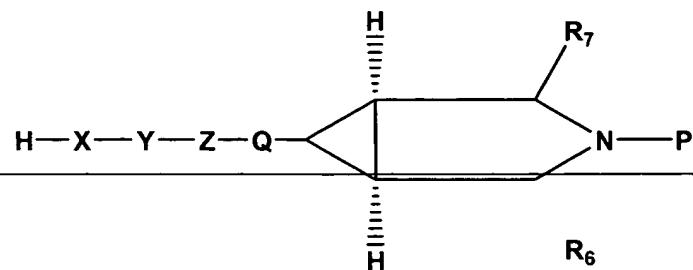
R_6 and R_7 are independently selected from H, CH_3 , COOH, CONH₂, NH₂ or CH_2NH_2 ; and

R_4 represents a $\text{C}_{1-\text{C}}_{15}$ saturated or unsaturated aliphatic hydrocarbon group in which from 1 to 6 hydrogen atoms may be substituted with the group independently selected from halogen, arylalkyl, arylalkenyl, heteroarylalkyl or heteroarylalkenyl having 1 to 2 hetero atoms selected from the group consisting of nitrogen, oxygen and sulphur atoms with an option that any 1 to 3 hydrogen atoms on the ring in said arylalkyl, arylalkenyl, hetero arylalkenyl group may be substituted with lower alkyl ($\text{C}_{1-\text{C}}_4$), lower perhalo alkyl ($\text{C}_{1-\text{C}}_4$), cyano, hydroxyl, nitro, lower alkoxy carbonyl, halogen, lower alkoxy ($\text{C}_{1-\text{C}}_4$), lower perhalo alkoxy ($\text{C}_{1-\text{C}}_4$), unsubstituted amino, N-lower alkylamino ($\text{C}_{1-\text{C}}_4$) or N-lower alkylamino carbonyl ($\text{C}_{1-\text{C}}_4$), comprising

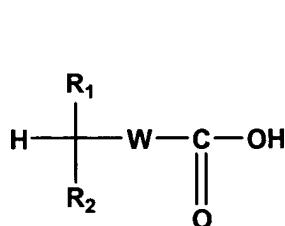
(a) condensing a compound of Formula VI with a compound of Formula V



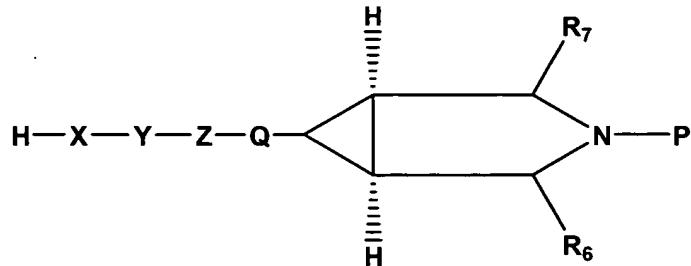
FORMULA VI



FORMULA V

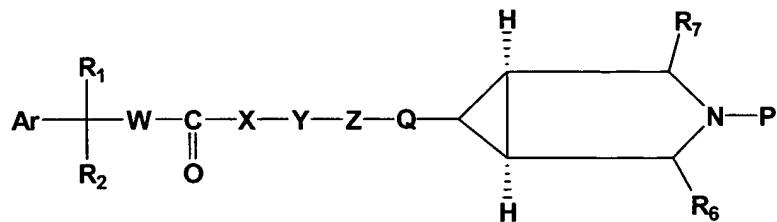


FORMULA VI



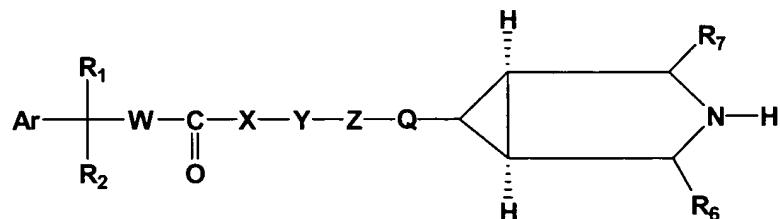
FORMULA V

wherein Ar, R₁, R₂, W, X, Y, Z, Q, R₆ and R₇ have the same meanings as defined earlier for Formula I, to give a protected compound of Formula VII wherein Ar, R₁, R₂, W, X, Y, Z, Q, R₆ and R₇ are the same as defined earlier and P is a protecting group for an amino group,



FORMULA VII

(b) deprotecting the compound of Formula VII in the presence of a deprotecting agent to give an unprotected intermediate of Formula VIII wherein Ar, R₁, R₂, W, X, Y, Z, Q, R₆ and R₇ are the same as defined earlier, and

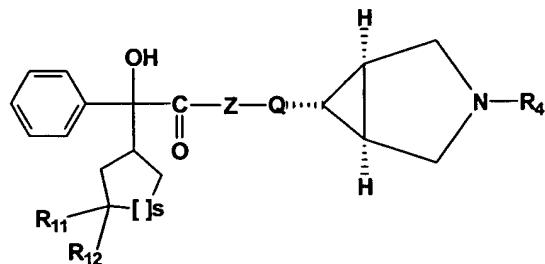


FORMULA VIII

- (c) N-alkylating or benzylating the intermediate of Formula VIII is ~~N~~-alkylated or benzylated with a suitable alkylating agent or benzylating agent to give a compound of Formula I.
18. (Original) The process according to claim 17 wherein P is any protecting group for an amino group and is selected from the group consisting of benzyl or t-butyloxy carbonyl groups.
19. (Original) The process according to claim 17 wherein the reaction of a compound of Formula V with a compound of Formula VI to give a compound of Formula VII is carried out in the presence of a condensing agent which is selected from the group consisting of 1-(3-dimethylaminopropyl)-3-ethyl carbodiimide hydrochloride (EDC) and 1,8-diazabicyclo [5.4.0] undec-7-ene (DBU).
20. Cancelled.
21. (Original) The process according to claim 17 wherein the reaction of a compound of Formula V with a compound of Formula VI is carried out at about 0-140°C.
22. (Original) The process according to claim 17 wherein the deprotection of a compound of Formula VII to give a compound of Formula VIII is carried out with a deprotecting agent which is selected from the group consisting of palladium on carbon, trifluoroacetic acid (TFA) and hydrochloric acid.
23. Cancelled.
24. (Original) The process according to claim 17 wherein the N-alkylation or benzylation of a compound of Formula VIII to give a compound of Formula I is carried out with a suitable alkylating or benzylating agent, L-R₄, wherein L is any leaving group and R₄ is the same as defined earlier.
25. (Original) The process according to claim 24 wherein the leaving group is selected from the group consisting of halogen, O-mestyl and O-tosyl group.

26. Cancelled.

27. (Currently Amended) A process for preparing a compound of Formula IV



FORMULA IV

and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs or metabolites, wherein

R_{11} is hydrogen or fluoro, R_{12} is fluoro, amide or sulphonamide derivatives and s represents 1 to 2;

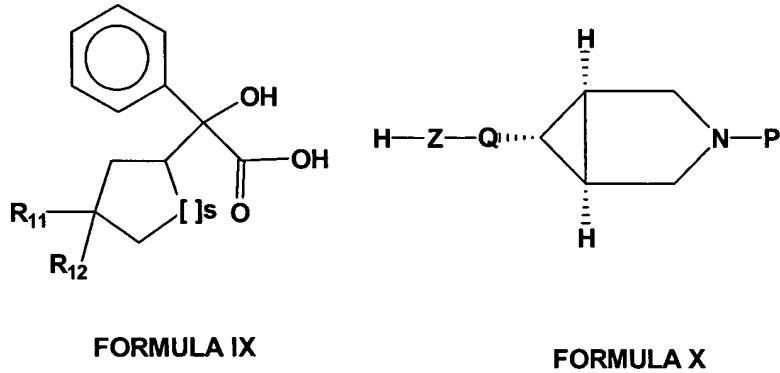
Z represents oxygen, sulphur, NR_{10} , wherein R_{10} represents hydrogen, C_{1-6} alkyl;

Q represents $(CH_2)_n$ wherein n represents 1 to 4, or CHR_8 wherein R_8 represents H, OH, C_{1-6} , alkyl, alkenyl alkoxy or CH_2CHR_9 wherein R_9 represents H, OH, lower alkyl (C_1-C_4) or lower alkoxy (C_1-C_4); and

R_4 represents a $C_{1-C_{15}}$ saturated or unsaturated aliphatic hydrocarbon group in which from 1 to 6 hydrogen atoms may be substituted with the group independently selected from halogen, arylalkyl, arylalkenyl, heteroarylalkyl or heteroarylalkenyl having 1 to 2 hetero atoms selected from a group consisting of nitrogen, oxygen and sulphur atoms with an option that any 1 to 3 hydrogen atoms on the ring in said arylalkyl, arylalkenyl, hetero arylalkenyl group may be substituted with lower alkyl (C_1-C_4), lower perhalo alkyl (C_1-C_4), cyano, hydroxyl, nitro, lower alkoxy carbonyl, halogen, lower alkoxy (C_1-C_4),

lower perhaloalkoxy (C₁-C₄), unsubstituted amino, N-lower alkylamino (C₁-C₄), N-lower alkylamino carbonyl (C₁-C₄), comprising

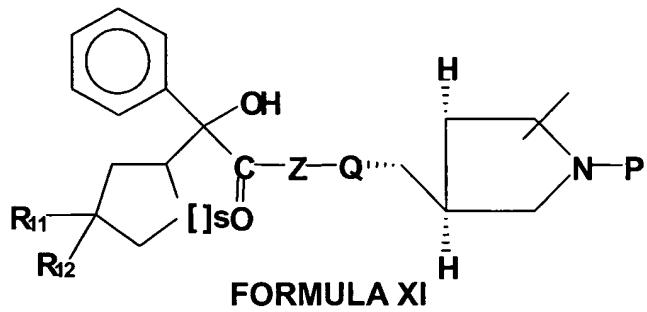
(a) (i) condensing a compound of Formula IX with a compound of Formula X



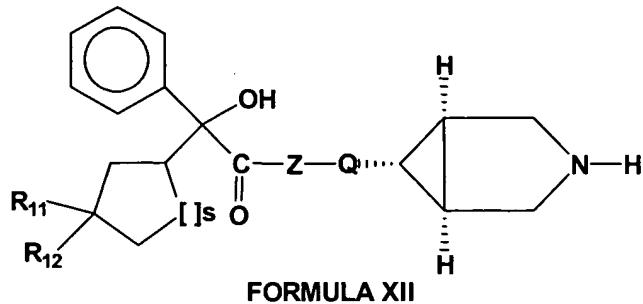
FORMULA IX

FORMULA X

where Z, Q, R₁₁, R₁₂ and s have the same meanings as defined earlier for Formula IV, to give a protected compound of Formula XI,

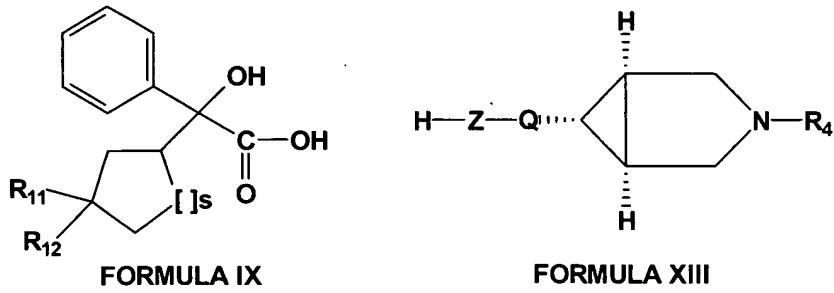


(b) (ii) deprotecting the compound of Formula XI in the presence of a deprotecting agent to give an unprotected intermediate of Formula XII where Z, Q, R₁₁, R₁₂, s have the same meanings as defined earlier, and



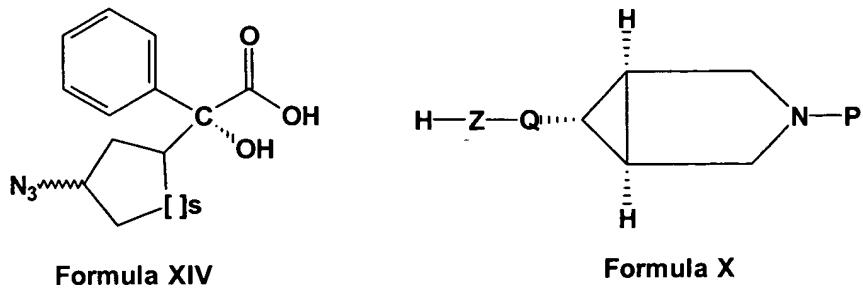
(e) (iii) the intermediate of Formula XII is N-alkylated or benzylated with a suitable alkylating or benzylating agent to give a compound of Formula IV wherein Z, Q, R₁₁, R₁₂, and s are the same as defined earlier; or

(b) (i) condensing a compound of Formula IX with a compound of Formula XIII

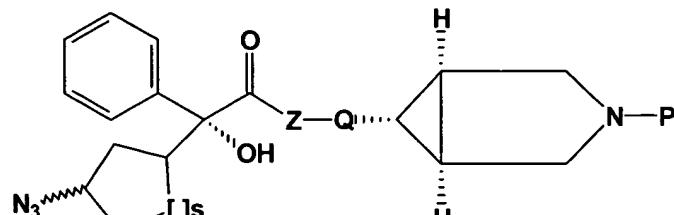


where Z, Q, R₄ and s have the same meanings as defined earlier for Formula IV;
or

(c) (i) condensing a compound of Formula XIV with a compound of Formula X

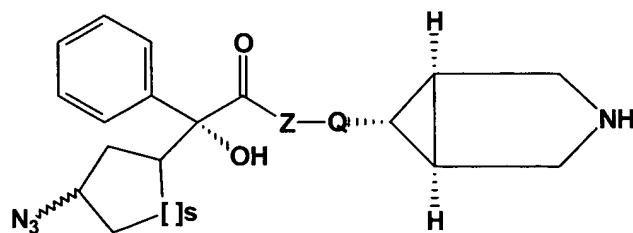


where Z, Q and s have the same meanings as defined earlier for Formula IV, to give a protected compound of Formula XV,



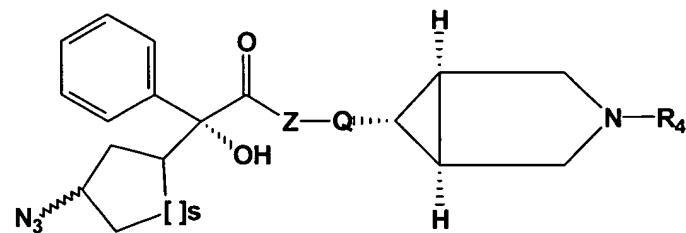
Formula XV

(ii) deprotecting the compound of Formula XV in the presence of a deprotecting agent to give an unprotected intermediate of Formula XVI, wherein Z, Q and s have the same meanings as defined earlier,



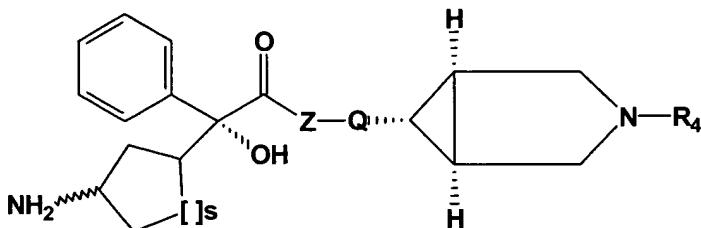
Formula XVI

(iii) N-alkylating or benzylating the intermediate of Formula XVI with a suitable alkylating or benzylating agent to give a compound of Formula XVII, wherein Z, Q, R_4 and s are the same as defined earlier,



Formula XVII

(iv) reducing the compound of Formula XVII to give a compound of Formula XVII,
wherein Z, Q, R₄ and s have the same meanings as defined earlier, and



Formula XVIII

(v) reacting a compound of Formula XVIII with acid chlorides to give a compound of Formula IV (R₁₁=H, R₁₂= substituted sulfonamide).

28. (Original) The process according to claim 27 wherein P is a protecting group for an amino group and is selected from the group consisting of benzyl or t-butoxy carbonyl groups.
29. (Currently Amended) The process according to claim 27 wherein the reaction of a compound of Formula IX with a compound of Formula X to give a compound of Formula XI, the reaction of a compound of Formula XIII with a compound of Formula IX or the reaction of a compound of Formula XIV with a compound of Formula X is carried out in the presence of a condensing agent which is selected from the group consisting of 1-(3-dimethyl aminopropyl)-3-ethyl-carbodiimide hydrochloride (EDC) and 1,8-diazabicyclo [5.4.0] undec-7-ene (DBU).
30. Cancelled.
31. (Currently Amended) The process according to claim 27 wherein the reaction of a compound of Formula IX with a compound of Formula X, the reaction of a compound of Formula XIII with a compound of Formula IX or the reaction of a compound of Formula XIV with a compound of Formula X is carried out at about 0-140°C.

32. (Currently Amended) The process according to claim 27 wherein the deprotection of a compound of Formula XI to give a compound of Formula XII or the deprotection of a compound of Formula V to give a compound of Formula XVI is carried out with a deprotecting agent which is selected from the group consisting of palladium on carbon, trifluoroacetic acid (TFA) and hydrochloric acid.
33. Cancelled.
34. (Currently Amended) The process according to claim 27 wherein the N-alkylation or benzylation of a compound of Formula XII to give a compound of Formula IV or the N-alkylation or benzylation of a compound of Formula XVI to give a compound of Formula XVII is carried out with a suitable alkylating or benzylating agent, L-R₄, wherein L is any leaving group and R₄ is the same as defined earlier.
35. (Original) The process according to claim 34 wherein the leaving group is selected from the group consisting of halogen, O-mestyl and O-tosyl group.
36. Cancelled.
37. Cancelled.
38. Cancelled.
39. Cancelled.
40. Cancelled.
41. Cancelled.
42. Cancelled.
43. Cancelled.
44. Cancelled.

45. Cancelled.
46. Cancelled.
47. Cancelled.
48. Cancelled.
49. Cancelled.
50. Cancelled.
51. (Currently Amended) The process according to claim 41 27 wherein the reduction of a compound of Formula XVII to give a compound of Formula XVIII is carried out ~~in the presence of a suitable solvent selected from the group consisting of tetrahydrofuran and water with triphenylphosphine.~~
52. Cancelled.
53. (Currently Amended) The process according to claim 41 27 wherein the acid chlorides used in the reaction of a compound of Formula XVIII with acid chlorides is carried out in the presence of a suitable solvent selected from the group consisting of dichloromethane, dichloroethane and chloroform is selected from the group consisting of phenylacetyl chloride, 4-nitrophenylsulfonyl chloride, benzene sulfonyl chloride, benzyloxyacetyl chloride, 4-methoxyphenylsulfonyl chloride and 4-bromophenylsulfonyl chloride.
54. Cancelled.